

Appendix D

Conversions

In 1975, the Deputy Secretary of Defense established policies which encouraged a gradual changeover to the use of the metric system of measurement. At present, this impacts the Corps of Engineers primarily in the preparation of technical reports, feasibility studies, and

design aids. The primary reference used in the preparation of this appendix is Engineering Design Handbook - Metric Conversion Guide (DARCOM 1976). A more common reference is Petersen (1980). The metric system being adopted throughout the United States is the "International System of Units," commonly referred to as *SI Units*. This is the most widely used system for scientific and technical data and specifications.

Multiply	By	To Obtain
<i>Length, Area, and Volume</i>		
inches	25.4* 2.54*	millimeters centimeters
feet	30.48* 0.3048*	centimeters meters
yards	0.9144*	meters
fathoms	1.8288*	meters
statute miles (U.S.)	1609.344* 1.609344*	meters kilometers
nautical miles (internat.)	1852.0* 1.852*	meters kilometers
square inches	6.4516*	square centimeters
square feet	919.030 0.092903	square centimeters square meters
square yards	0.836127	square meters
acres	0.404686 4046.86	hectares square meters
square miles (U.S. statute)	2.58999	square kilometers
cubic inches	16.3871	cubic centimeters
cubic feet	0.0283168	cubic meters
cubic yards	0.764555	cubic meters
cubic yards per foot	2.50838	cubic meters per meter
acre-feet	1233.48	cubic meters
<i>Mass and Density</i>		
slugs	14.5939029*	kilograms
slugs per cubic foot	515.379	kilograms per cubic meter
<i>Force, Stress, and Specific Weight</i>		
pounds	4.44822	newtons
kips (1000 lb)	4.44822	kilonewtons
short tons (2000 lb)	8.89644	kilonewtons
long tons (2240 lb)	9.96401	kilonewtons
pounds per foot	14.5939	newtons per meter
kips per foot	14.5939	kilonewtons per meter
millibar	100.0*	pascals
pounds per square inch	6.89476	kilopascals
pounds per square foot	47.8803	pascals

Multiply	By	To Obtain
<i>Force, Stress, and Specific Weight (Continued)</i>		
short tons per square foot	95.7605	kilopascals
pounds per cubic inch	271.447	kilonewtons per cubic meter
pounds per cubic foot	157.087	newtons per cubic meter
<i>Velocity and Acceleration</i>		
feet per second	0.3048*	meters per second
miles per hour (statute)	0.44704*	meters per second
	1.609344*	kilometers per hour
knots (international)	0.514444	meters per second
	1.852*	kilometers per hour
feet per second	0.3048*	meters per second
<i>Volume Discharge</i>		
cubic feet per second	0.028317*	cubic meters per second
cubic yards per year	0.764555	cubic meters per year
<i>Energy and Power</i>		
foot-pounds	1.35582	joules
kilowatt hours	3.60*	megajoules
British thermal units (Btu)	1055.06	joules
horsepower	745.700	watts
Btu per hour	0.293071	watts
foot-pound-force per second	1.35582	watts
* Values are exact conversion values.		